# The Journal OF THE South Carolina Medical Association

VOL. XV. GREENVILLE, S. C., APRIL, 1919 NO. 4


Medical College of the State of South Carolina Charleston, S. C.

## CONTENTS


Editorial:
United States Public Health Service ---------- 413
The Florence Meeting Exceeds Expectations -- ---------- 414
Original Articles:
Pathologic Anatomy and Bacteriological Findings in 31 Autopsies During Recent Epidemic of Influenza, by Jesse W. Smith, U. S. Naval Hospital, Charleston, S. C. ---------- 414
Psychoses Following Influenza, by J. F. Munnerlyn, M. D., Columbia, S. C. ---------- 417
President's Address, by James A. Hayne, M. D., Columbia, S. C. 419
Abstracts -- ---------- 426



## The Baker Sanatorium

**Colonial Lake** **Charleston, S. C.**

ARCHIBALD E. BAKER, M. D., Surgeon in Charge.

*A New and thoroughly equipped hospital for the care of Surgical patients.*

# Mixed Vaccines

**THE VITAL STATISTICS OF THE ARMY, as well as agglutinin and Bactericidal experiments, have established:**

**FIRST**—That vaccination against Typhoid only does not protect against Paratyphoid "A" or "B," but that it does protect against Typhoid.

**SECOND**—That vaccination against Paratyphoid "A" protects against that infection but does not protect against Typhoid or Paratyphoid "B."

**THIRD**—That vaccination against Paratyphoid "B" likewise protects against that infection only.

**FOURTH**—That vaccination against all three infections does definitely protect against all three.

**FIFTH—That the protection** conferred **and the results of agglutination** test, **are identically the same whether the individual is immunized against each organism separately** or **whether the vaccines are given in combination.**

**SIXTH**—That the "Non-Specific-Reaction" of Typhoid vaccination is of no avail as a protection against the closely allied Paratyphoid infections.

Of course it is not always safe to reason from analogy. On the other hand is it not well to preserve the open mind and consider if there may not be merit in combinations af vaccines other than Typhoid-Paratyphoid, even though the immunizing response is less distinct and of shorter duration?

## The Cutter Laboratory

(Operating Under U. S. License)

**Berkely - - - - California**

*"The Laboratory That Knows How"*

Producers of Vaccines true to labeled content and count

**Write for Price List**

**EASTERN BRANCH: The Cutter Laboratory (of Illinois), 180 Dearborn Street, Chicago, Illinois**

# The Journal OF THE South Carolina Medical Association

Published Every Month Under the Direction of the Board of Councilors.

Entered as second-class matter February 9, 1916, at the post office at Greenville, South Carolina, under the Act of March 3, 1879.
Acceptance for mailing at special rate of postage provided for in Sec. 1103 Act of October 3, 1917, authorized August 2, 1918.

Annual Subscription, $2.00. EDGAR A. HINES, M. D., Editor-in-Chief, Seneca, S. C.



ASSOCIATE EDITORS.

INTERNAL MEDICINE.
J. H. GIBBES, M. D., Columbia, S. C.

PEDIATRICS.
WM. WESTON, M. D., Columbia, S. C.
R. M. POLLITZER, M. D., Charleston, S. C.

OBSTETRICS AND GYNECOLOGY.
ATMAR SMITH, M. D., Charleston, S. C.

GENITO-URINARY DISEASES AND SEROLOGY
M. H. WYMAN, M. D., Columbia, S. C.

SURGERY.
G. T. TYLER, M. D., Greenville, S. C.
R. LEE SANDERS, Memphis, Tenn.

PUBLIC HEALTH.
J. LaBRUCE WARD, M. D., Columbia, S. C.

EYE, EAR, NOSE, AND THROAT.
E. W. CARPENTER, M. D., Greenville, S. C.


## EDITORIAL

### UNITED STATES PUBLIC HEALTH SERVICE

Time to get after that early brood of flies, says the United States Public Health Service. Better to prevent the breeding of hundreds of flies now than to swat and trap millions of them in mid-summer.

---

The United States Public Health Service estimates that over seven million people in the United States are infected with malaria.

---

"Public Health is purchasable," says the United States Public Health Service, and adds that a first-class health protection service can be provided for one dollar per head per year. In fact some city health departments render excellent service at a cost of seventy-five cents per head. Let's all get together and give better support to health work in this community.

---

Estimates prepared by the United States Public Health Service indicate in the South the ravages of typhoid fever, tuberculosis, hookworm, and pellagra, all together are not as serious as those caused by malaria.

---

Still relying on the Patent Medicine Almanac? Better discard it and get the new one issued by the United States Public Health Service, Washington, D. C. Sent free on request.

---

Uncle Sam will provide sanatorium and hospital care for all the boys discharged from army or naval service, so far as their sickness or disability was contracted in the service of their

country. The United States Public Health Service has already undertaken this stupendous task and is buisly engaged in enlarging its hospital facilities all over the country. One of the sanatoria will be located at Dawson Springs, a famous health resort in Kentucky; the location of the others has not yet been determined.

---

The United States Public Health Service submits the following list of "our animal friends" and wonders what we propose doing about it:

Anopheles mosquitoes, which carry malaria.

Aedes mosquitoes, which carry yellow fever.

Lice, (with military training), which carry trench fever.

Lice, (with or without military traiining) which carry typus fever.

Flies, which carry typhoid fever, dysentery and other diseases.

Fleas, which carry bubonic plague.

Tsetse flies, which carry African sleeping sickness.

Hookworm, which is very much attached to man.

---

## THE FLORENCE MEETING EXCEEDS EXPECTATIONS.

As we go to press the Florence meeting has just been concluded and full information in regard to it will appear in our next issue. Nearly two hundred physicians were there and very favorable comment was heard as to the success of the one day scientific session. The election of Lieutenant Colonel E. W. Pressly to be President of the Association for 1919 assures the membership of a leader whose popularity and brilliant attainments have long been acknowledged.

# ORIGINAL ARTICLES

## PATHOLOGIC ANATOMY AND BACTERIOLOGICAL FINDINGS IN 31 AUTOPSIES DURING RECENT EPIDEMIC OF INFLUENZA

By Jesse W. Smith, U. S. Naval Hospital, Charleston, S. C.

IN view of the fact that none of us who had an opportunity to study the pathology and bacteriology of the recent epidemic have agreed, especially on the bacteriology, I feel it necessary to describe just how my autopsies were performed and for the bacteriological work, the kind of media used. The autopsies were performed as soon as possible after death. This being from one to six hours. The description of the body and gross descriptions of the organs were dictated to a hospital corpsman. Aerobic and anerobic cultures were made from the heart's blood. A Wassermann was also made from the heart's blood. Aerobic and anerobic cultures were made from the lungs. Pyrosode method was used for the anerobic cultures. Smears and cultures were made from the bronchi in

Read in Symposium on Influenza before South Carolina Medical Association, Florence, S. C., April 16, 1919.

most of the cases. The media were neutrant, and neutral to phenolphthaleinblood agar, 0. 5% acid bouillon, and 0 5% acid glucose bouillon. The blood agar was made as follows: To 100 c. c. of the 2% agar was added 2 c. c of defibrinated human blood. The 2 c. c. of blood was first added to 8 c. c. of distilled water and allowed to stand about 5 minutes in order that some of the blood cells could be hemolyzed. This was added to the agar after it had been melted down and then cooled to 45 deg. C. This gave a media in which hemoglobin was in solution, and whole red cells present for detecting the hemolytic streptococci. The usual formula for making bouillon was also used in this work.

Of course all of my autopsies were on well developed and well nourished adult males, between 21 and 35 years of age. Icterus was found in nine of the subjects, in some very slight and in others very marked. As to whether this was of hematogenous or acathectic origin, I am unable to say. I am inclined to think it was of hematohepatogenous origin. Emphysema was found in the neck and on the upper anterior portion of the chest in five of the subjects. This was very marked in one case as it extended over the entire chest, shoulders, into the axilla and down the arms to the insertion of the deltoids.

An antemortem extravasation of blood was found in the left pectoralis major muscle in one subject. Cultures were made from this and found to be negative. An antemortem extravasation of blood was found in the left rectus muscle in 3% of the cases. One of these showed complete transverse separation of the muscle fibers.

Upon opening the body attention was immediately called to the lungs which as a rule met and overlapped in the mid-line in such a manner as to obscure the precordial area. Emphysema was found in the mediastinal tissues and beneath the parietal pleura in the majority of the cases. This was easily detected because it gave a crackling sensation to the palpating finger. From 10 to 500 c. c. of fluid ranging from straw to coffee colored was found in the pleural cavities in the majority of the cases. The pleural cavities were completely obliterated by thick greenish-yellow fibrinous exudate in three of the subjects.

Type III pneumococci was found in one of them; type II in another, and in the third case no organisms were found. In these three cases positive blood cultures were found in both ante and post mortem specimens. The same type of organism in pure culture was found in each case.

Endocarditis was found in two subjects, one due to type II pneumococci, the other staphylococcus pyogenes aureus. These organisms were found in ante and post mortem blood cultures, and at autopsy in pure culture from the vegetations on the valves of the heart.

The case that was due to type II pneumococci was clinically a typical picture of unresolved lobular pneumonia.

**Lungs:**

Upon gross examination one could readily see that he was dealing with something out of the ordinary, because it was not a typical lobular or lobar pneumonia. In the majority of the cases the lungs were voluminous and preserved the form and size of the thoracic cavity after removal. The lower lobes were from pinkish-red to a deep slate blue color, and almost completely consolidated. The anterior edges escaped consolidation and show-

ed compensatory emphysema. Many hemorrhagic areas were visible, and varied from petechial spots to large extravasations of blood covering the entire lobe. The cut surface presented a complex condition, because in some it would be pinkish-blue to bluish-black in color, while in others it appeared dark-red to blue in color. It was not granular but showed numerous slightly elevated and indurated areas which varied in size from 1 to 5 mm. On microscopical examination these areas were found to be alveoli filled with polymorphonuclear leukocytes. The middle lobe and upper lobes presented a different picture. They showed a typical lobular pneumonia in the majority of cases. The unaffected areas showed marked emphysema. Cut surfaces of these lobes showed a varying degree of pathology. In the center of many of the consolidated areas I found cavities from which I always cultivated the staphylococcus pyogenes aureus. Microscopical examination showed necrotic tissue, numerous polymorphonu-clear leukocytes and an extravasation of red blood cells. The pathology found in each case varied in accordance with the time the patient was sick before death and the type of organisms present.

A purulent bronchitis was found in the majority of the cases.

**Heart:**

The heart was well preserved with the exception of the two cases mentioned above no gross pathology was found. Microscopical examination, however, showed some cloudy swelling.

**Kidneys:**

The kidneys were slightly enlarged in the majority of cases the capsules stripping easily and leaving a smooth injected surface. The substance of the kidney would bulge beyond the cut edge of the capsule. Miscroscopical examination showed wide spread cloudy swelling.

The spleen was slightly enlarged in a few, and in these microscopical examination showed blood sinuses to be engorged.

**Liver:**

Macroscopically the liver was not involved, but on microscopical examination showed marked cloudy swelling.

No pathology was noted in the stomach and intestines, and the peritoneum was usually rather dry.

The brain and spinal cord was examined in a few of the cases that showed mental symptoms before death, and no gross or microscopical pathology was found. The spinal fluids were examined and no organisms found.

The Wassermann was positive in only two cases. One a four plus and the other a three plus. There was other evidences of syphilis found on macroscopical examination of organs.

My bacteriological findings were as follows: I did not find the influenza bacilli in the heart's blood of any of the cases. I always found it in cultures and from smears made from the bronchi. I found the influenza bacilli, in pure culture, from the lungs in seven cases. In sixteen cases I found the influenza bacilli mixed with other organisms; four times with staphylococcus pyogenes aureus; five times with type IV pneumococci; three times with type III pneumococci; twice with type II pneumococci; once with hemolytic streptococci and once with Freidlander bacillus. In two of the cases I found only staphylococcus

pyogenes aureus. I always found a positive blood culture of the same organism. One case only of type II pneumococci; one case only of type III pneumococci; and in three of my cases I got no growth from the lungs or from the heart's blood.

## PSYCHOSES FOLLOWING INFLUENZA

By J. F. Munnerlyn, M. D. Medical Director State Hospital, Columbia, S. C.

INFLUENZA has long been known for its multiplicity of complications. Sir William Osler states that it may be followed by almost every form of disease of the nervous system. The literature, however, with reference to mental disorders associated with influenza is especially conspicuous for its paucity. One author states "that among the most important of the nervous sequella are depression of spirits, melancholia and in some cases dementia." Another author says "among nervous sequella which are both numerous and important are to be noted especially insomnia, neuralgia, migraine melancholia with suicidal tendencies, meningitis and not infrequently delirium of a most acute form." But it was only recently that this subject began to be studied in the light of the new theories of insanity and an attempt made to properly classify the different types of psychosis associated with this malady.

From the best information obtainable the epidemic began in South Carolina about September 15. From its inception until January 20th, a period of four months, eighty-five cases were admitted to the State Hospital, who came with the history that Influenza was the cause of their mental disturbance. On account of the difficulty in procuring a good anamnesis in some of the cases, data is complete in only forty-two and it is upon these forty-two cases that the conclusions arrived at in this paper are based.

Read in Symposium on Influenza before South Carolina Medical Association Florence, S. C., April 16, 1919.

Effort to make a correct psychiatric diagnosis was pursued in the usual manner. Each case was kept in bed for at least a week after admission, a thorough mental and physical examination was made and upon the completion of the examination the patient was presented at Staff meeting. Here, after a careful consideration of the mental, physical and serologic findings, the case was classified according to a preponderence of symptoms. Complying with this method it was found that the psychosis following influenza could be placed in four diagnostic groups. Group one comprises those cases known as the infection-exhaustion psychosis or delirious episodes. Twenty nine per cent (29%) were of this type. These cases presented in their clinical aspect states of delirium, characterized by clouding of consciousness, disorientation, confusion and transitory hallucinations both auditory and visual. As a rule, no history of mental peculiarities fore-shadowing the coming of a psychosis of this type could be obtained—they usually began suddenly, were the result of plain physical causes and after an average of ten days' treatment were apparently normal again. The history usually obtained in these cases was as follows: Patient A seemed to be making a satisfactory recovery, temperature gradually declining and there was every indication of a favorable prognosis. But it was noticed that he did not comprehend readily, there seemed to be some confusion and the patient be-

gan to stare widly at those about him. In spite of the fact that he continued to improve physically, his mental symptoms gradually grew worse and on the fifth day there was marked clouding of consciousness, increased psycho-motor activity, causing such an alarming state of affairs until he was rushed to the Hospital as an emergency case. A few cases, however, presented little psycho-motor activity, showed only slight confusion, but complained of hearing imaginary voices and saw peculiar objects on the wall. One case, a white male, twenty-three years of age, who made an apparently uneventful recovery, while sitting by the fire, on the third day after getting out of bed, began to see letters on the back of the fire place—the letters would form into groups and spell various words. The patient became very much disturbed over this strange phenomena and three days later was brought to the Hospital. After two weeks' treatment this patient recovered, regained his insight and was able to return home. With the exception of three cases who were markedly prostrated and lived only four days after admission, all of the cases in group one recovered after two weeks' treatment and were able to return home apparently in good condition.

Group two comprises those cases known as the manic depressive phychosis, including both the manic and depressed phase. The term manic depressive is identically the same as acute mania and melancholia, which was used by the older psychiatrist. Formerly practically all excited and exalted patients were included under the designation of acute mania, while all depressed patients were classed as melancholia. From a study of the principal symptoms presented, it was found that twenty-four per cent (24%) of the forty-two cases under consideration occupied this group. There were twice as many manics as depressed, which is contrary to the findings of the older psychiatrists who claimed that depression of spirits and melancholia were the chief psychotic disturbances following influenza. The clinical picture in these cases was identically the same as found in manic depressive psychosis occurring as a result of other causes. The manic reaction with its feeling of well being flight of ideas and over activity was well established in the manic cases, while the depressive reaction with its feeling of mental and physical insufficiency, mental retardation, a despendent and sad expression, was well marked in the depressed cases.

Group three comprises the cases of frank Dementia Praecox. This group also represents the largest number of cases, thirty-four per cent (34%) of those studied being diagnosed Dementia Praecox. Attention is called to the fact that quite a number of these cases presented symptoms not unlike the Infection-Exhaustion psychosis. It frequently appeared that the patient was suffering from a delirious episode —the delusions and hallucinations were dream like and the patient seemed to be confused, but upon further observation, the symptoms of Dementia Praecox were so clearly revealed until there was no mistake in the diagnosis. No history of a definite psychosis prior to the attacks of influenza could be obtained in any of these cases. But, after carefully questioning their relatives, it was ascertained that most of them showed certain peculiarities or traits long before the actual break came. These peculiarities were usually of an apparently trivial nature, as expressed by the father of one patient "he was always a little moddy, was

quick to get mad and didn't associate with other boys and girls very much." In such cases, I do not believe that we would be far wrong in considering influenza as an etiological factor of Dementia Praecox, merely as the proverbial last straw on the camel's back. Symptoms of this type of psychosis occurred on an average of ten days after the acute symptoms of the Influenza had subsided.

Group four comprises the unclassified cases. Ten per cent (10%) of those studied were placed in this group, due principally to a lack of information, atypical symptoms and a difference in opinion on the part of the Staff. It may be anticipated, however, that a large number of those unclassified cases will eventually fall into class three.

### Conclusions

1. That from a study of forty-two cases of insanity following Influenza, three types of Psychosis were recognized, namely, Infection Exhaustion Psychosis, Manic Depressive and Dementia Praecox.

2. Numerically Dementia Praecox is the most frequent type of psychosis occurring in thirty-four % of the cases. It may be added, however, that quite a number of the Infection Exhaustion cases were probably treated at home and recovered before it was necessary to send them to the Hospital.

3. The average age of all cases was twenty-six years. The ages ranged from fifteen of forty.

4. The average time between the subsidence of the acute symptoms of Influenza and the beginning of the psychosis was seven days. The time ranged from one day to three weeks.

5. The duration and severity of the attack of Influenza seemed to have practically no bearing upon the development of a psychosis. Most cases gave a history of recovering from the attack of Influenza without trouble.

6. Influenza acts as an important exciting cause in producing insanity, the infection exhaustion psychosis being liable to occur in any patient of low resistance—the Manic Depressive and Dementia Praecox types occurring usually in those individuals showing peculiar personal characteristics long before the attack of Influenza.

## PRESIDENTAL ADDRESS

**To the South Carolina Medical Association, Florence, South Carolina, April 16, 1919.**

**By James A. Hayne, M. D., Columbia, S. C.**

Ladies and Gentlemen, Fellows of the South Carolina Medical Association:

THE honored conferred upon me by this Association at the Aiken meet in making me your president was one little merited and as far from my dreams as possible. When one recalls the galaxy of names of men who have been honored with the presidency of this Association and reflects upon the distinction they had attained in their profession, or which they have afterwards achieved, one can only believe that, as was said to me by a member when congratulating me upon my nomination, "presidential timber is certainly getting as scarce as the long-leafed pine." Fellows, I appreciate the honor done me, and consider it the acme of distinction in a medical career.

President of the South Carolina Medical Association! A proud title indeed, and one recalls the beautiful words of the "Choir Invisible," for one feels surrounded by the spirits of the

great and good men who have held that title. "O, may I join the Choir Invisible of those immortals who live again in mind made better by their presence, live in pulses stirred to generosity, in deeds of daring rectitude, in scorn of miserable aims that end in self, in thoughts sublime that pierce the night like stars, and with their mild persistence urge man's search to vaster issues * * * * * This life to come which martyred men have made more glorious for us who strive to follow. May I reach the purest heaven; be to other souls the cup of strength in some great agony; enkindle generous ardor; feed pure love; beget the smiles that have no cruelty; be the sweet presence of a good diffused and in diffusion evermore intense, so shall I join the Choir Invisible, whose music is the gladness of the world."

How truly this poem comes home to us when we think of our glorious heritage of freedom, bequeathed to us by the bravery of South Carolina's sons who laid down their lives on the fateful field of France. Never can their glory fade, and we should remember how well our profession carried out its traditions, earning all praise for their self-sacrifice and courage. The long honor roll of South Carolina physicians is written in the book of the brave wherein are inscribed the names of those who have ever placed country first and self-interest last. Fellows of the South Carolina Medical Association, shall we not take the torch relinquished by the dying fingers of our heroes in France, that torch which lighted the world to freedom, and which was borne triumphantly through all pain and peril until that Hindenberg line of doubt and despair which surrounded the world with a pall of darkness was broken by our sons who drove the Hun reeling back into his own lands. Shall we not make South Carolina worthy of such heroes? Must we not keep faith with those who sleep in Sunny France? Shall we not drive illiteracy, squalid poverty and diseases bred of ignorance from out this State, and truly make South Carolina the real Elysian Fields she seemed to our sons when they longed for her in the mud and filth of the trenches and in the agony of wounds in many hospitals?

Two pledges were made by me on election—namely, the establishment of a Bureau of Child Hygiene for South Carolina, and that there should be provision made for the care of tuberculosis among the negroes of the State. That I am able to report to you that I have kept these pledges is due largely to the work of our Secretary, Dr. E. A. Hines, who has never ceased to strive for the establishment of a Bureau of Child Hygiene, and also to the energy, zeal and unfaultering faith of Mrs. Annie E. Rembert, Feld Secretary of the Tuberculosis Sanatorium, who spends herself in the effort to have our Legislature see the necessity of fighting the Great White Plague, and the impossibility of successfully doing this if the claims of the tubercular negro were ignored. A Bureau of Child Hygiene has been established by the State Board of Health with the appropriation of $10,000, granted by the Legislature. Mrs. Ruth A. Dodd, a graduate nurse trained in this work, will have charge of the Bureau, assisted by an advisory council. The work of this Bureau will be fully explained at this Session, and I feel sure that the establishment of this Bureau is an epoch in the history of South Carolina. The Legislature appropriated $10,000 to build a negro sanatorium at Columbia, and the negroes are subscribing

and intend to supplement the $10,000 by a gift to the State of $10,000. With this money we propose to have an up-to-date sanatorium for negroes at State Park near the site of the present white sanatorium.

We will need help from our Association in making both the Bureau of Child Hygiene and the negro tuberculosis sanatorium a success, but I have no fear of lack of interest and aid from the profession, a large number of whom have for their Alma Mater the Medical College of South Carolina, whose motto is "Augiemus largiendo" —"we grow by giving," and all of whom are imbued with the traditional love of their fellow man, which is ever the watchword of the man of medicine.

No rose is without a thorn, and the sweetness of knowing that one has been elected president is always tinctured with the bitter thought that sooner or later one must make an address. This shadow, at first no bigger than a man's hand, grows until it overshadows the horizon and all is gloom. It is said that one of the evils that will be removed from earth after July—when the coming of the great drought will cause beverages like whiskey, beer and wine to become traditional like the mead of the old Norse Vikings—will be the abolition of after-dinner speeches, for no one would have the cruelty in cold, sober blood to inflict one, and no one without the courage known as "Dutch" could endure one. Perhaps, therefore, my successor in office can bear his blushing honors full upon him without the gloomy thought that all these honors means that he must prepare an address. However, the custom has not yet been abolished, and I will, therefore, plunge in medias res, as the Latin used to say.

In trying to find a subject for a discourse which would entertain and enlighten, and about which I could find literature that I could conscientiously copy, I have chosen the following: "Plagues and Pestilences, Ancient and Modern." This seemed to me a timely subject, for after our experiences in the past year with influenza, our minds naturally revert to other pestilences that have afflicted the world since recorded history. The first plagues that we have record of are the plagues of Egypt, and we are struck by the natural sequence of events as described in Exodus. First, the waters of the streams became polluted, unfit to drink and on account of their red color from mud and other impurities were said to have been turned into blood. Then the fish died and myriads of frogs made their appearance. The frogs died and upon their decaying bodies swarms of flies fed. Then the cattle died and as a consequence of the death of the cattle —which died because the water was unfit to drink—the last plague was a natural result—namely, the death of the first-born. A modern epidemiologist would have predicted that the little children would be sacrificed in a land where sanitation was evidently unknown. Remember that this was before the sanitary laws of Moses, those laws which have stood the test of ages and are even now the best basis for the sanitation of a community, and no doubt Moses laid great stress upon these sanitary laws after his experiences in the land of Pharoah. Mankind has ever struggled against these overwhelming and little understood agencies which again and again have destroyed millions of people. The history of medicine is a history of struggles to prevent pestilences, as well as how to cure disease. Without

a clear differentiation between various pestilences it is probable that the greatest pandemics have been either what we now call Bubonic Plague, Cholera, Small Pox or Influenza, and I will endeavor briefly to give some account of these four pestilences that walk in the noon day. Typhus fever, Yellow Fever and Malaria have killed their thousands, but from the way in which these diseases are spread could hardly become pandemic. The first four have scourged the world from time immorial. Three of these, Plague, Cholera and Small Pox, have been conquered by medical science, and as long as the light of knowledge shines out in the dark places of the world, mankind is safe from the Black Death, Cholera and Small Pox; but Influenza, that medical sphinx, still claims its thousands of victims, and every fifteen to thirty years sweeps the world and has baffled medical science. The last dread epidemic was perhaps the greatest the world has ever known, and has taken its toll from every known country, and has spared no race; oceans have not kept it in bounds, nor have the highest mountain chains prevented its spread.

### Bubonic Plague

Thucydides in 430 B. C. gives a most interesting account of a plague which ravaged Athens, then besieged by the Spartans. His description easily identified this plague as the modern Bubonic Plague. That clear writer of the Jewish times A. D. 72, Josephus, describes Bubonic Plague in Jerusalem. Again in Rome during the reign of Vespasian in A. D. 77 we find this plague, evidently brought back by the soldiers from the siege of Jerusalem. It appears to have been present in Rome under Marcus Aurelius, under Commodus and under Gallienus in 262 5,000 people died daily. Under Justinian we first see a condition which resembles conditions found in Boston in 1918—namely, that although 1,000 grave diggers were employed they were unable to bury the dead.

In 565 at Treves it was first called the Pestis Inguinaria, thus definitely proving it to be modern Bubonic Plague. Skipping over the centuries to 1347, we find that it was known as the Black Death. Boccaccio describes the plague and its physical and moral effect upon Florence. Horrible pictures are drawn of the distress occasioned by this disease. In 1563 it was introduced into England by the return of the English army from the continent. There was also a strange disease at this time which was called the English Sweat and spread over Germany, which people gave it this name, and perhaps accounts for the Hmyn of Hate we are so familiar with as preached by the Germans. 1603, 1625, 1636 and 1665 are the dates of the great ravages of plague in England. As Bubonic Plague is ever present in the Far East, in Turkey and other lands, ever and again it has been brought into Europe and our quarantine laws have been built up on the fear of this disease and of Cholera. The Ancients endeavored to stop its ravages by sacrifices, and the Christians by prayers and processions with holy relics, etc. The Chinese endeavored to drive off the devils by shooting fire-crackers, by beating on gongs and by other methods equally as absurd. Modern knowledge teaches us that Bubonic Plague is primarily a disease of rats, and secondarily a disease of man, and that it was conveyed by the diseased rats to man by fleas, and thus by finding out the cause we can rationally expect that never again will the world be stricken

by a pandemic of this ancient enemy of man. The history of our victory over this disease is a most interesting one, and you will pardon me if I bring to your mind what is to you a well known story. It was not until 1893 when Bubonic Plague appeared in Hongkong that the Bacillis Pestis was discovered by Kitasato and independently by Yersin. The Plague made its appearance in the United States in San Francisco in 1909, and the Plague work there was under Rupert Blue of a distinguished South Carolina family, now Surgeon-General of the United States Public Health Service. The work of Blue was directed principally toward rat-proofing buildings, the destruction of rats and the prevention of the landing of rats from infected ships. Unfortunately, the disease spread from rats to ground squirrels, field mice and rock squirrels. As has been stated before, the ordinary spread of this disease is from rats to man through the flea. The rats principally concerned in the transmission of the disease is the Epimys Rattus, and the flea is the Xenopsylla Cheopis. There is one thing, however, to be said about Bubonic Plague—namely, that there is a form known as the Pneumonic Plague. The transmission of this form is direct from patient to patient, and the bacilli are thrown out by coughing or hawking. An epidemic of this occurred in 1910-11 in Manchuria and was studied by the American Red Cross Expedition under Strong, Teague and Barbour, also an independent investigation by Asst. Surgeon Dr. Carter at Mukden. We have a definitely curative plague seer prepared by Yersin. It has been disappointing in severe cases, but in mild cases it is very efficient. The names that willever be remembered in this country in regard to Plague work will be Blue, White and McCoy, all of the United States Public Health Service.

### Cholera

"In this disease we have to differentiate between Cholera Nostras, which means cholera belonging to our own country, and Asiatic Cholera. Cholera is ever present in India and the Delta of the Ganges. It spreads from India to the shores of the Red Sea, Egypt and the Mediterranean—this by trading vessels, whereas by land it goes to Northern India, Afghanistan, Persia, Central Asia and so to Russia. The attention of European physicians was first called to this disease in 1817. It reached London in 1832 and then crossed the Atlantic and spread to North and Central America. It advanced about as rapidly as a man could walk in a day, hence Eugene Sue in his wonderful story of the "Wandering Jew" wove the tradition of that time into his story that Cholera was carried by the "Wandering Jew" in his travels up and down the world, and thus pictures the terrible punishment of the "Wandering Jew;" who brought with him the pestilence and though doomed to live himself forever, or as tradition has it that he was told to "tarry 'till I come," these being the words of the Master to him, he brought death to all he loved by conveying to them the dread disease, Cholera. One of the most striking epidemics occurred in Hamburg in 1892, and from thence to England and to the United States. Here its speed was so great that it emphasized the Progress mankind had made in getting from one place to another. It traveled no longer by slow stages, such as it did when man's mode of transportation was limited to the horse, the camel and on foot. In Hamburg 16,956 people had the disease and 8,605

died. At the cemetery which was about ten miles from town hundreds of men were employed digging trenches into which double rows of coffins were placed. Seventy-two cases were brought in by seven vessels into the United States. Sixteen others occurred on shore, but there was no spread, which shows how wonderfully well we are protected by the efficiency of the United States Public Health Service. This epidemic taught the world how to protect itself. It taught us that the disease was only spread by drinking water and by uncooked food and fruits, and the civilized nations of the world have pledged themselves to notify all other nations if a focus of infection was found. The United States has been free from Cholera since 1832, when a terrible epidemic occurred, and all churches, schools and public gatherings were forbidden. Protection of drinking water supplies is an absolute safeguard against an epidemic of this disease.

### Small Pox

"We public health men owe a debt of gratitude to Small Pox, for by that name we conjure. It seems to be the only contagious disease that mankind is really afraid of. Almost all boards of health legislation was slowly formulated and based upon this universal fear that people have of Small Pox. This fear is evidently a survival transmitted from generation to generation since the time when this disease was regarded as the most loathsome, most deadly and most to be avoided of all diseases. Much obscurity surrounds this disease, it dates back in a clear history to the Sixth Century, and Rhazes, a Ninth Century Arabian physician, describes it. It was introduced into America by the Spaniards. It has been an enormously expensive disease, for not only does its fear inspire laws for its prevention, but also it will drag from the unwilling purse of the tax-payer more money for its prevention than any other disease. I will not burden you by detailing the discovery by Jenner of vaccination in 1796, or tell you about Lady Mary Wortley Montague, who was probably one of the first suffragettes. Suffice it to say that one hundred years ago women whose complexions had not been spoiled by small pox were so rare that they were regarded as curiosities, and that in the Seventeenth Century 15,000,000 people died. As a contrast there have been two deaths from Small Pox in South Carolina in the past three years. Compulsory vaccination of children is the only answer to the problem of How to Prevent Small Pox.

### Influenza

We now come to the great problem, for of the preceding diseases we have learned the cause, the mode of transmission and the method which will prevent their spread, but with Influenza, how different a story. With all the skill and present knowledge of preventive medicine, influenza killed over 400,000 people in the United States, and in South Carolina caused over 10,000 deaths and over 400,000 cases in a brief period.

I do not know whether we are much better off than the Italians were in the Seventeenth Century, who ascribed influenza to the influence of the stars. It is also ascribed to earthquakes and volcanic eruptions. It has appeared in fleets at sea far away from all communication with land. This occurred to Admiral Richard Kempenfelt. We note, also, big epidemics, one in 1847 which lasted about eight years, and another one in 1890, and it seems to prevail independently of climate, sea-

son or weather. It has nothing to do with a bad cold, but is an acute specific fever of unknown origin.

Your president had the honor to be present in Chicago in December, 1918, and was made a member of the Sub-Committee on Measures for Prevention, of which Dr. Rupert Blue was Chairman, Dr. W. A. Evans of Chicago and Dr. M. S. Fraser of Winnipeg, Manitoba, were fellow members. of which Dr. W. H. Park of New York was Chairman. A Sub-Committee on History and Statistics, of which Dr. William H. Davis was Chairman, and a Sub-Committee on Measures for Relief, of which Dr. D. B. Armstrong of Framingham, Massachusetts, was Chairman. There were sixteen in all of this Committee, and we sat in a room of the hotel from eleven o'clock in the morning until two o'clock that night, having our meals served and debated and discussed Influenza. The Bacteriologists confessed that they did not know the cause. The Statistical Committee was strong in their report, as they could say how many had had the disease and how many had died.

The Commitee on Relief was exhaustive in its report, suggesting every known method for the relief, even going so far as to suggest the purchase of a trench digging machine in large cities, so that people could be buried when grave diggers failed. But the Committee on Measures for Prevention could not come to any amicable agreement, because conditions differed so widely in congested cities like New York, Chicago, Detroit and San Francisco from the conditions prevailing in rural districts, and the city man tried to force his measures for prevention on the countryman, and the countryman insisted upon treating the city man with a dose of rural medicine. The closing of churches in Chicago would perhaps affect one-tenth of one percent of the population. The closing of churches in rural districts would prevent contact of probably twenty-five percent of the population, and thus we discussed from morn 'till dewey eve, reminding me very much of Gulliver's account of the political kingdom he visited where the main point of dispute was whether one should break an egg at the big end or at the little end.

The epidemic in South Carolina first made its appearance on September 21 in Abbeville, at least it was first reported there. Then Newberry took up the tale on September 25 when one hundred cases were reported. After that it spread so rapidly that the Health Officer is unable to give the chronology of its occurrence. At the Symposium to be held at this meeting you will learn of this disease.

Now, Ladies, Gentlemen and Fellows, remember the reward that was promised to them who endure until the end. I am now going to deseribe probably the worst epidemic that afflicts mankind. It is deseribed by the Latins as Cacoethes Scribendi—the Itch for Writing, and as a companion disease which is known as the Casoethes Loquendi—this disease has ever been prevalent and has afflicted mankind since the time of Job, for you remember that Bildad the Shuhite, after listening to Job who had catalogued to him all his woe—his boils, his blains, his loss of wives, his loss of cattle and all the ills that befell poor Job—finally exclaimed "Oh, Lord, will he never make an end of speaking?" For fear that this may be your inward comment upon this address, I now close.

# ABSTRACTS

The following are abstracts from editorials published in The Journal of the American Medical Association for March 15, 1919:

## EPIDEMIC OR LETHARGIC ENCEPHALTIS

### Acute Infectious Ophthalmoplegia, Acute Encephalitis, Nona?

This unfamiliar disease, many cases of which were observed in England and France early in 1918 and in Vienna in the winter of 1916-1917, when von Economo suggested the name "encephalitis lethargica," now seems to be making its appearance in various parts of this country. In the recent discussion on influenza before the Institute of Medicine of Chicago, Bassoe stated that during the last few weeks he had seen several cases which were characterized by marked drowsiness and paralysis of cranial nerves, especially the ocular, and which otherwise corresponded to the clinical picture of lethargic encephalitis, and that he knew of similar observations by other physicians. Last week Pothier reported the clinical details of eight cases from Camp Lee, Va., and Neal mentions the occurrence of cases in New York.

In previous editorial discussions of the European, especially the English, reports on lethargic encephalitis, special emphasis was placed on its similarity to the cerebral and bulbar forms of epidemic polionmyelitis, and it was suggested that further investigations might show "the new disease" to be true epidemic poliamyelitis. In the meantime, the report of an extensive collective investigation of lethargic encephalitis (168 cases) has appeared from which we learn that, while nothing by way of a causal agent has been demonstrated, intracerebral inoculations of monkeys with emulsions of diseased nervous tissue failed completely to produce any results. As the monkey is readily susceptible to such treatment with similar material from cases of epidemic poliomyelitis, the present indications are that the two diseases are separate and distinct, and this conclusion is borne out also by certain clinical and epidemiologic differences to which attention has been called, by Netter in Paris, especially. It is noteworthy, however, that the anatomic changes in the two diseases are of the same general nature, and MacNalty ventures the suggestion that the relation between epidemic poliomyelitis and lethargic encephalitis may be comparable to that between typhoid and parayphoid fevers. The English investigators consequently regard lethargic encephalitis as due to an as yet unknown virus which causes inflammatory changes, especially perivascular infiltrations, in the basal ganglions, the upper part of the pons, especially in the gray matter of the floor of the fourth ventricle, and in less degree elsewhere in the medulla. It is distinctly a polioencephalitic disease: the outstanding clinical features are a more or less pronounced lethargy, often progressive, and paralysis of the third and less often other cranial nerves. Ophthalmoplegia was observed in about 75 per cent. of the English cases.

It is noteworthy that cases appear to occur with the general symptoms of fever, lethargy and weakness, but without paralysis, and hence are easily mistaken for more common infections, though perhaps of the greatest importance in the spread of the disease, which now is notifiable in England and Wales. At present, however, no new cases seem to be occurring in these countries. The results of further and more complete observations of lethargic encephalitis as it occurs in this country will be awaited with special interest.

It is quite remarkable that while English and other European observers do not seem to place any special stress on the relation of the newly recognized disease to influenza, the American cases so far reported are associated by the observers, particularly Bassoe and Neal, more or less directly with influenza. Four of Pothier's eight patients are said to have had influenza a few weeks before they came down with lethargic encephalitis. While the question thus raised cannot be answered at this time, the information we now have indicates that it is only in connection with epidemics of influenza that anything definitely resembling lethargic encephalitis is described in the older literature.

It is said that profound and prolonged sleep has been observed in connection with many epidemics of inhuenza since early times. Zuelzer mentions that in the epidemic of '712, somnolent conditions were so frequent and so marked that in Tubingen, for instance, the disease was known as sleeping sickness, and Longuet gives a quotation from Camerarius which appears actually to describe ophthalmoplegia. coming down to more recent times, we find that in the early ninties of the last centur, at the time of the influenza outbreak of 1889-1891, quite a little was written about a since forgotten disease called "nona" (also "la nonna"), which is said to have occurred especilly in northern Italy and Hungary, but also elsewhere, and of which lethargy and weakness were pronounced manifestations. At about the same time cases of ophthalmoplegia with stupor and somnolence were described by Blanc, Mauthner and others, and the question was raised then whether "nona" was not a kind of ophthalmoplegia. "Nena," however, failed to establish itself as a definite disease, and was soon forgotten completely.—Jour. A. M. A., March 15, 1919.

## TAKING CHANCES IN BLOOD TRANSFUSION

Transfusion of blood or blood constituents has become a necessity in modern clinical practice. Its general utility is unfortunately still limited by a number of difficulties of technic and incompatibilities of blood that have not been satisfactorily mastered. None of our present methods—the syringe cannula, the paraffined tube and the citrated blood procedures—are absolutely free from all objectionable features, among which unanticipated hemolysis, agglutination of the corpuscles, and febrile reactions are included. Of the dangers due to incompatibility we shall consider particularly those due to agglutination rather than those due to lysis.

In 1900, Landsteiner first suggested that human being mught be divided into definite groups according to whether or not the corpuscles of one were agglutinated by the serum of the other, or vice versa. His preliminary grouping into three classes was subsequently shown to be somewhat inac-

curate, and numerous examinations made since that time have definitely shown that there are four groups. As long ago as 1907, Hektoen said: "From the practical point of view, isoagglutination of human corpuscles is of immediate interest in connection with the determination of the opsonic index and with transfusion of blood." It will be remembered that in 1906 Crile had successfully transfused blood from normal to diseased human beings. Hektoen also said, in commenting on this achievement: "The occurrence of isoagglutinins in human blood suggests that under special conditions homologous transfusion might prove dangerous by leading to erythrocytic agglutination within the vessels of the subject transfused." Since 1906, transfusion has been performed on such a multitude of persons in such a great variety of disease conditions that there is good evidence to show the necessity for again repeating warning of Hektoen to the effect that the presence of these isoagglutinins in human blood may be a danger during transfusion. Cases of transfusion in human being with seemingly unfavorable results due to cross-agglutination were reported by Schultz (1910), Hopkins (1910) and Ottenberg (1911).

The subject has been somewhat complicated by the introduction of the citrate method of transfusion, whereby the agglutination of the blood during transfusion is prevented by the addition of a small quantity of sodium citrate. This method of transfusion, being relatively easy, has become quite a vogue, and has led many observers to believe that preliminary tests of the compatibility of donors' and recipients' blood are unnecessary. This appears to have been the case especially with some of those who utilized the transfusion of convalescents' blood as a means of treatment during the recent epidemic of respiratory diseases. Recently Pemberton has reported on 1,036 blood transfusion, and he further emphasizes the need of preliminary tests. This large series of transfusions was made in the Mayo Clinic between 1915 and 1918, thirty-five of them by direct methods and 1,001 by the citrate method. Pemberton is convinced of the importance of preliminary tests before transfusion. He points out that Bernheim in 1915 collected data of 800 transfusions by twelve different operators, and reported hemolysis in fifteen cases with four deaths. In twelve cases in the series of transfusions in the Mayo Clinic there were group reactions. In every case in which the blood had been grouped by the microscopic test, the observers were able to locate later the error in the test, most of them due to clerical errors in recording the group of the donor or the recipient. He describes a typical reaction, such as occurs when transfusion is done between persons of incompatible groups:

> They occur early after the introduction of 50 or 100 c.c of blood; the patient first complaining of tingling pains shooting over the bodp, a fulness in the head and an oppressive feeling about the precordium, and, later, an excruciating pain localized in the lumbar region. Slowly but perceptibly the face becomes suffused, a dark red to a cyanotic hue; respirations become somewhat labored, and the pulse rate, at first slow, sometimes suddenly drops as many as 200 to 30 beats a minute. The patient may lose consciousness for a few minutes. In one half of our cases an urticarial eruption, generalized over the body, or limited to the face, appeared along with these symptoms. Later the pulse may become very rapid and thready;

the skin becomes cold and clammy, and the patient's condition is indeed grave. In from fifteen minutes to an hour, a chill occurs, followed by high fever, a temperature of 103 to 105 degrees, in which the patient may become delirious. Jaundice may appear later. The macroscopic appearance of hemoglobinuria is almost constant. In three such instances the symptoms were not recognized at the time of transfusion, and 500 c.c of blood were injected. All the patients died, two in one and three hours, respectively, following the transfusion, and one became comatose shortly afterward and died thirty hours later. In the other nine instances the symptoms were early recognized and interpreted, and the transfusion was concluded after the injection of 50 to 100 c.c of blood. Adrenalin (epinephrin) and atropin were administered with good effect. There was no mortality in this group.

He concludes that these cases "point out most strikingly the fact that the injection of incompatible blood, namely, in which the donor's cells are agglutinable by the serum of the patient, is attended by the development of symptoms of the gravest nature, and that if these are not early recognized and the transfusion concluded before the injection of a large quantity of blood, fatal results are to be expected.'

In the case of citrate transfusions, certain special untoward factors concerned have been made the subject of study in man by Drinker and Brittingham at the Harvard Medical School laboratories. They have failed to observe any constant relation between the method of citration or the purity of the citrate used and the number of reactions. The objectionable component resides in the cells of the blood; for citrated plasma, thoroughly freed from all formed elements by prolong high speed centrifugalization or by porcelain filtration, is singularly nontoxic, contrasting markedly with serum in this regard. On the other hand, the washed whole cell content of blood is uniformly toxic, whether injected into the individual from which the cells have been removed (plasmaphersis) or into different individuals who have been tested and show no agglutination or hemolysis of red cells.

A further analysis of the location of the factors in the cells responsible for the difficulties indicates that reactions decrease as the platelets are removed from the transfusion mixture. The Harvard investigators report that salt solution, red cells, white cells in greatly reduced numbers, and absence of platelets make the most perfect blood for transfusion that they have observed. Apparently changes in the platelets as a part of the process of coagulation represent a transformation responsible for the appearance of toxicity. The leukocytes themselves seem to be devoid of incompatibilities. Finally, they seem to have shown that citration harms the red cells, thereby promoting the possibility of hemolysis in otherwise compatible bloods. They found 44 per cent. of reactions with citrated blood, as compared with 20 per cent. of reactions when uncitrated blood transfusions were performed. They state that 20 per cent. is a decidedly lower percentage of reactions than has been obtained with any other method.

Contrasted with their small series, however, is that of Pemberton, who found only 219, or 21 per cent., of reactions in the 1,036 cases which he analyzes. Lewisohn has also recently reported 200 cases, and is convinced

that the frequency of chills is about the same with the citrate as with other methods. He, too, found reactions in 20 per cent. of his cases.

Thus, one by one, the detrimental factors in transfusion are being recognized. The next steps consist in devising ways to avert or eliminate them and thereby make a frequently desirable performance more dependable and less threatening.—Jour. A. M. A., March 15, 1919.

---

The following are abstracts of articles in the issue of The Journal, March 15, 1919:

## SUPERFETATION

A. W. Meyers, Palo Alto, Calif. (Journal A. M. A., March 15, 1919), says that without exception the alleged cases of superfetation except perhaps in mammals with bicornate uteri are equivocal. It is easy to see that aside from ectopic implantations the conditions necessary for superfetation in the human subject are entirely different. The older of two fetuses would have filled the uterine cavity rather effectively, entirely aside from the possible effect of the cervical mucous plug. An obstacle to the implantation might also be found in the condition of the decidua, not to speak of the development of the first fetus and the corpus luteum. Loeb has found that in the pregnant guineapig the endometrium cannot be stimulated to form a new decidua. The difficulty is evident in case of similar conditions in the human species. If a young blastocyst really can be implanted on the bare surface of an ovary or on the peritoneum, it may well be doubted whether a new decidual reaction is necessary. Furthermore, when implantation in the graafian follicle has occurred, there probably is no decidual reaction comparable to that in the uterus, though a corpus luteum might act vicariously to some extent. There are other obstacles, however, such as possible occlusion of the uterine tubal orifices with the hyperplasia of the muscles during pregnancy. While ovulation and menstruation are apparently not simultaneous, successive ovulations are probably periodic, and separated by considerable intervals. While cases of ovulation during pregnancy have been reported, so little is known as to exact conditions that they are undecisive. Alleged occurrence of superfetation involves a series of assumptions, and the conclusion of Gustetter that it is a frequently overlooked cause of abortion seems rather venturesome. The possibility of superfecundation, however, is not necessarily excluded, as ova from same ovulation still might be fertilized by spermatozoa from the same or a subsequent coitus. The relatively limited vitality of the unfertilized ovum would render it difficult to recognize such cases, and to try to account for the discrepancy in size or development of two fetuses by two ovulations far removed from each other does not remove the difficulties. The occurrence of superunmerary litters in certain mammals is discussed, and Meyer finds difficulties here, also. Misinterpretation of finding is easy for the general practitioner, but doubts are raised among specialists. Meyer deals particularly with the cases in the Mall collection which have come to his notice and which have been regarded as evidence of superfetation, and finds in them evidence of the possibility of death of a twin fetus rather than cases of superfetation. He concludes that under specially favorable conditions the oc-

currence of gross differences might be found in some cases of twin pregnancy, and may be largely responsible for the quite general belief in superfetation. The article is illustrated.

## STEPTOCOCCUS HEMOLYTICUS

A. H. Bunce, Louis Berlin and C. E. Lawrence, A. E. F., France (Journal A. M. A., March 15, 1919) present the data obtained in the study of the bacteriology of war wounds, as seen in Base Hospital No. 43. The study included a series of 1,848 cultures made on 985 consecutive war wounds. Streptococcus hemolyticus was isolated in 24 per cent. This was not indicated by the clinical appearances. Its presence was determined by culture. The presence of this organism is the chief cause of the failure of secondary suture, and therefore no wound showing a positive culture of it should be closed. Other things being equal, its presence approximately doubles the length of stay in the hospital as compared with wounds not showing ti. A neutral solution of chlorinated soda (Dakin's solution is of value in clearing up these wounds, but its action is much slower than in wounds showing the same clinical features but not on culture the S. hemolyticus.

## MOSQUITO CONTROL IN RICE-FIELDS

report on the experimental tests of control methods against mosquitos in the ricefields at Lonoke, Ark., by J. A. Geiger and W. C. Purdy, of the Public Health Service, is published in the Journal A. M. A., March 15, 1919. Both Anopheles and Culex breed in moderate abundance in the flooded fields, and the tests were made on ten small fields of one ace each, isolated by levees but forming a part of a larger ricefield. To reduce breeding of mosquitoes in ricefields, several things must be considered which restriet the work somewhat. The safety of the rice crop must be respected, and expense must be moderate. Water was dipped along the levees, a compasite dipperful being taken every twelve feet and each dipper partly filled at shorter intervals. This process was repeated in midfield. The total number of larvae and pupae was called the "catch" but the pre eensee

"catch" but the presence of other forms of life was recorded. Beginning with August, definite count was kept of beetle larvae and damsel-flies, and the examination included inspection of aquatic insects and their larvae, also of fish and crayfish, and of various aquatic plants, such as algae. The applications were made with fuel oil at the entrance gate, but its distribution was slow and unsatisfactory. Use of usaturated sawdust, however, gave highly satisfactory results. The rice was not injured, and repeated examinations of the plot from four days to two weeks after application of the oil gave wholly negative results as to larvae. A mixture of two parts of kerosene and one of black oil was found unsatisfactory on one farm, but fairly satisfactory on the other. The action of top minnows was largely confined to the deeper water, along the levees. Their introduction effected a considerably lessened number of mosquito larvae. Intermittent flooding was tried on the farms but was not altogether satisfactory. They find that flooding, as a control method, is hardly feasible, ewing to the expense and the impossibility of preventing the transferal of mosquitoes beyond flight distance. The

minnows are considered a doubtful measure owing to their preference for the deeper waters. Their presence, however, does mean a considerable reduction of larvae, and they are very few or are asbent in roadside ditches, which, hewever, are not comparable with the ricefields. The various varieties of oil applied by the drip-can method proved a failure. The results when saturated sawdust was used offer hopes for future control within reasonable flight distance of communities, and a corresponding reduction of the malaria incidence. Several tables are given with the article.

## CALIPER TREATMENT

D. W. Crile, Edmonton, England (Journal A. M. A., March 15, 1919), discusses certain points of the treatment of fractures of the femur by the caliper method, introduced into general surgery by Lieut. Col. Besley, U. S. A., and recommends it very highly. The value of the caliper in these cases lies in the fact that a direct force can be applied to the bone without damaging it and without penetrating its cortex. The penetration of the cortex implies misuse of the instrument or a defect in its construction. The original instrument is better than some of its modifications. Penetration of the cortex depends on several factors, but chiefly on the shape of the caliper points. A long thin taper is the worst. The relative length of the handle arm is also important, and when the handles widely diverge the chance of penetration is greater. The arrangement of the cords at the handle ends has also much to do with the pressure. The position on the femur is another great factor. But most important of all is the joggling or constant vibration, transmitted over the pulleys by the ropes and instigated by the body tone and movements. Gross movement is not referred to, but a constant fine bivratory one, such as that produced by boring, with a blunt instrument. In Crile's experience it has never been necessary to bore small holes into the bone to hold the calipers. The pressure on the points must be steady, and any variation of the pull on the ropes means pain, erosion or penetration of the cortex, or all three together. The most important points to be borne in mind are: (1) a short, broad tapering point, (') the prevention of very slight joggling, (3) application to the hard portion of the bone, (4) low leverage (short handle ends not diverging too much), and (5) check appliances. There are several kinds of check appliances in use, the purpose of which is to check penetration by putting a stop between the handle ends of the calipers to prevent the points coming too close. This, however, does not prevent the one point from penetrating when the other is pushed away from the bone and slips. Crile finds more satisfactory a screw locking both approximation and spreading. The question of corrosion of points does not apply to short heavy ones, which could not in many months corrode enough to do harm. The disadvantages in the use of the caliper are, Crile thinks, vastly outweighed by the improvement in length, early union, good position and clearing up of sepsis, decreased number of cases of acute medullary ostemyelitis, stiffness and tiff ankles, and pressure paralyses of the external popliteal nerve. The drawbacks that cannot be avoided otherwise have been met by designing a caliper permitting the pull to be take nfrom the sides and allowing the knee to be fully extended. It has, how-

ever, the objection of being more expensive. Crile describes the method of applying the calipers which he has found most satisfactory. The fracture itself is an important factor in deciding the point of application, and much may depend on the direction of the pull. The rule is to pull in the direction of the long axis of the bone, except in dully considered exceptional cases. The amount of pull will vary according to the amount of shortening to be overcome, the strength of the muscles, the age and site of the fracture, the amount of swelling and tenseness of the deep fascia, and the degree of the infection. "It is my custom to apply 15 pounds directly. If this promises, after twenty-four hours, to stretch the fractures sufficiently, it is enough. If it seems not to perform its functions, which can be from 1-4 to two inches per day, it is increased to 20 pounds, which is sufficient to stretch almost any fractures full length, provided the apparatus is correct. One need not hesitate to use 25 pounds, or even 30 pounds for a few days, and often forcible reduction under an anesthetic may be resorted to. If the extra weight causes periosteal pain, it can be reduced. One finds that 10 pounds is the least that avails fully, although others can get results with only five pounds, I am told. However, one aims to get a little overlength inside a week and thereafter to hold this gain by tie-on fixed extension, which in reality takes very little pull once overlength is accomplished." The caliper will probably cause some discomfort the first forty-eight hours and perhaps at a later period. Relief can often be given by a little local anesthetic applied near the point if the caliper, such as a pinch of powdered procain on the dressing. Or a temporary reduction of the weight, if it can be done without slipping, will help. The method is applicable to bones other than the femur, such as the tibia, fibula and humerus, and others have had success in these cases. The illustrations are useful in making clear the decription of the method.

## URETERAL CALCULUS

E. M. E. Sundelof, Fall River, Mass. (Journal A. M. A., March 15, 1919), reports, a case with typical symptoms of ureteral calculus demonstrated by two roentgen examinations, seven months apart, and located below the brim of the pelvis. There were no stones in the kidneys, and operation failed to reveal the stone in the position indicated by the roentgen ray. The hydroephrotic right kidney, corresponding to the ureter with the stone, was removed, and the calculus was found within it. It had evidently rested on a stricture in the ureter. The patient died of surgical shock. The change of place of the stone was probably due to the Trendelenburg position in which he had been placed to free the pelvis of the intestine.

## HOSPITAL MESS MANAGEMENT

R. G. Heskins, Washington, D. C. (Journal A. M. A., March 15, 1919), gives the important features of the mess management in a military hospital. In the civil hospital the principal care is to make things as pleasant as possible under the nircumstances, but in the military hospital the chief consideration is to get the patient as soon as possible in a normal condition and out of the hospital. Though no violation of humanitarian principles would be justified, efficiency and not a

haven of peace and rest is the goal. The details of mess management in military hospitals are given too fully to be briefly abstracted without the risk of exaggerating or slighting some points. The full text will be useful for reference. Recently dietitians have come to play a large part in this work and have materially improved conditions. In spite of their lack of definite military status, their usefulness has been demonstrated.

### IINFLUENZA PNEUMONIA

C. W. Ross and E. J. Hund (San Francisco), Mare Island, Calif. (Journal A. M. A., March 1, 1919), report their experience with the treatment of influenza pneumonia by the transfusion of citrated immune blood. The clinical course of influenza indicates an extremely virulent intoxicant, acting mainly on the nervous system, as shown by the prostration and apathy, the disturbed heat mechanism, the gastro-intestinal disturbance of central type with peripheral sensory symptoms, vasomotor disturbance without evidence of myocardiac insufficiency and depression of the respiratory centers. The bacterial or other origin of the intoxicant is uncertain, but the vasaparesis it produces appears early, as shown by the slow, low tension pulse, early congestive cyanosis, visceral congestion, nasal and intestinal hemorrhages with good status of the heart muscle. Associated with this vasoparesis there undoubtedly coexists a circulatory inflammatory intoxicant, as is well shown by the destructive type of leukopenia. Secondary infection by well-known organisms is favored, and some cases progress to pneumonia, from which some may recover without treatment. Hence it is fair to assume, the authors say, that recovery depends on the presence of natural

**Prof. Anderson**

***Blasts Every Food Cell in Whole Wheat and Rice***

Prof. A. P. Anderson, formerly of Columbia University, solved the problem of steam exploding ALL the food cells in whole grain. The best other forms of cooking, baking or toasting fail to do that.

He seals the grains in guns, and revolves the guns for sixty minutes in 550 degrees of heat. Thus the moisture in each food cell is changed to steam.

When the guns are shot the steam explodes. In every kernel occur over 100 million explosions—one for every food cell.

The grains come out in bubble form, eight times normal size. They are thin, flaky, toasted tidbits with a nut-like taste. With cream and sugar or in bowls of milk they are veritable food confections.

The result of this process is easy, complete digestion. Whole grains are made inviting. Thousands of physicians, in many conditions, now advise this form of grain food.

**The Quaker Oats Company**

Sole Makers

**Puffed Wheat**
**Puffed Rice**
**Corn Puffs**

*All Steam-Exploded Grains* (3070)

protective elements in the circulation, and the logical treatment, therefore, would be to attempt to neutralize the intoxicant, correct the vasoparesis and prevent the blood destruction with its leukopenia. From the observation of the pneumonia cases, the authors found that when once started the process is apt to take on a fulminant progressive character, hence the theoretical value of transfusion, especially of blood from cases that have been rendered immune by recovery. The blood of donor and recipient should be carefully matched, and syphilis be guarded against, not only by the Wassermann test, but by close clinical observation. Poorly matched blood may have bad consequences, and incompatibility is very common, requiring careful selection of donors. A table is given showing the tests for incompatibility, following the technic of Kolmar, and also a detailed method of transfusion. Many of the patients were delirious and direct transfusion was impossible, and, therefore, they were forced to use the citrate method and to devise a closed apparatus for it, which is illustrated and described. The dose of blood varies according to the amount the patient can tolerate, but with relaxed vessels and fair condition of the heart relatively large amounts can be used in most cases. The authors used from 250 to 500 c.c. in their cases, preferably the larger amount. The strength of the citrate solution also varies with the dose of blood; the larger the dose of blood the smaller should be the volume and greater the strength of the citrate solution, so as not to introduce too large an amount of fluid. "One per cent. solution of sodium citrate in physiologic sodium chlorid solution will citrate an equal amount of blood. A 2 per cent. solution in physiologic sodium chlorid solution will citrate two volumes of blood, etc. We use a one per cent. solution for a dose up to 150 c.c.; a 2 per cent. for a dose up to 300 c.c.; a 3 per cent. for a dose up to 400 c.c., and a 4 per cent. for a dose up to 500 c.c. of blood." Charts and brief histories of the cases in which transfusion was performed in one of the units are included in the paper, and show the good results of the method. The procedure, the authors claim, is simple and safe, but they find that it is of no avail if the reserve powers of nature have been allowed to become too far impaired.

## SCHISTOSOMIASIS

J. J. Short, New York, reports a case of schistosomiasis, giving what is known of the natural history of the schistosomum, and describing the general pathology and symptoms of the disease, in The Journal A. M. A., March 1, 1919. The patient was a Russian Jew, who had spent about two years in Egypt and Palestine and had worked in the irrigation ditches, thus exposing himself to the invasion of the parasite. The case improved under treatment, which was necessarily symptomatic. The disease is essntially a chronic cystitis, which explains the dubious prognosis in these cases. The ova were miscroscopically recognized, being abundant in the urine.

## MITRAL STENOSIS

M. A. Rothschild (New York), Camp Devens, Ayer, Mass., (Journal A. M. A., March 1, 1919, says that mitral stenosis has not been generally regarded as a common valvular lesion, but in an examination of 25,813 soldiers it was found in 0.56 per cent. compared with 0.43 per cent. of mitral

regurgitation. Its definite recognition is based on the presence of a presystolic or diastolic apical murmur, with or without other classical signs or symptoms. The characteristic type of heart action is of paramount importance. In well-marked cases with hypertrophy, the almost ringing first sound, and the accentuated second pulmonic, with small pulse and other symptoms, the diagnosis is simple. But there are other cases with no symptoms and no cardiac hypertrophy, which require careful study, and the presystolic murmur is the basis of the diagnosis. They have examined the relationship of acute articular rheumatism to the lesion, and found it in the history of only 40 per cent. of the cases. The early cases require very careful examination, as the murmur is variable. There is a group of cases, which, for want of a better name, he calls "feeling cases" of mitral stenosis, in which there is no definite stenotic murmur, but a peculiar ringing or split first sound, and an accentuated pulmonic second. In this group, amyl nitrite inhalation is of service. The presence or absence of a thrill is of little value, on account of the danger of confusion with the systolic thrill of the neurocirculatory asthenia complex from which the condition must be differentiated. Ocular pupillary pressure, with the patient in the reclining posture, is of value here, and the lack of subjective complains in these cases is of interest. If we could follow a small group through a number of years, it would better our scanty knowledge of these earlier stages.

**For Those Who Reject Clear Bran**

There are many, as you know.

Bran to them is a forced diet, and they don't continue long.

We make the bran dish a luxury. We hide the bran in flavory flakes of wheat.

It is flake bran — not ground bran. It is concealed in a food of which nobody tires. And the food is now sold everywhere.

You will be surprised at how much bran people eat in this way.

***Pettijohn's***

***Rolled Wheat — 25% Bran***

**A breakfast dainty whose flavory flakes hide 25 per cent of bran.**

**Also Pettijohn's Flour — 75 per cent fine patent flour, 25 per cent bran. Use like Graham flour in any recipe.**

(3072)

## HYSTERICAL APHONIA

Charlest Wolf (New York), and E. G. Breeding (Baltimore), Takoma Park, D. C. (Journal A. M. A., March 1, 1919), report a case illustrating the difficulties of diagnosis in this disorder. Acute and chronic laryngitis, laryngeal tuberculosis, new growths and interstitial neuritis of the recurrent laryngeal nerve of syphilitic origin, all had to be excluded, and the restoration of the voice after an anesthetic cleared up the case.


# Vicious Circles

## In Infant and Invalid Feeding

The general weakness consequent on poor assimilation soon affects the working ability of the digestive apparatus itself.

Conversely, when proper assimilation once begins, the organs of assimilation themselves quickly share the tonic effects. An acceptable food therefore is the important factor in breaking the vicious circle. Time and again

DENNOS FOOD

has acted as the starter for infants and invalids with disturbed digestive functions. Dennos produces a modification of milk that is exceedingly bland. The fine, flocculent curd formed in the stomach is non-irritating and in best possible form to be readily assimilated.

**Samples of Dennos together with analysis, feeding formulas, etc., sent on request.**

DENNOS PRODUCTS CO.

2025 Elston Avenue, Chicago, Illinois

# Broadoaks Sanatorium

MORGANTON, N. C.

A private Hospital for the treatment of Nervous and Mental Diseases, Inebriety and Drug Habits. A home for selected Chronic Cases

ISAAC M. TAYLOR, M. D., Supt. and Resident Physician.

# Auto-Intoxication

## Through Intestinal Absorption

Upon the theory that the presence of **Bacilli Bulgarici** in the intestines inhibits the growth or multiplication of toxine producing bacteria

## Bulgaria Tablets, H. W. & D.

Containing large numbers of active and viable benign organisms.

### Are Indicated

## Conservative Clinicians

have continuously used them as an intestinal anti-fermentative and anti-putrefactive agent during the last seven or eight years.

**In tubes of 50 tablets**
**Each Dose: 2 to 4 tablets with meals**

## Hynson, Westcott & Dunning

**BALTIMORE**